II Sysops

A bi-monthly newsletter for, and by, Apple II sysops
Volume 1, Number 1 May/June 1991

ZMODEM FOR GBBS RELEASED

By DOUG GRANZOW
for II SYSOPS

Andy Nicholas recently mailed out the initial shipment of his GBBS Zmodem drivers to 49 sysops who responded to his original offer made in January.

Zmodem is generally considered the most efficient method of transferring files, especially with high-speed modems. Under good conditions, Zmodem is a streaming protocol, meaning the sending system doesn't have to wait for acknowledgement after each packet of data is sent. The release of these drivers makes GBBS the first major Apple II BBS program to support Zmodem.

Andy Nicholas continually improved the drivers while waiting for orders to come in, resulting in a final product that supports more features than originally announced. The drivers use a 16k buffer, and support CRC-32. There are several versions, including a set for ACOS v2.14 and later, yet to be released. ACOS v2.14 or later is recommended when using a high-speed modem or a super serial card to avoid lost data. [See "High Speed Modems, A Call For Action, page 4.]

The drivers are approximately 5k in length, so a special loading module is used which temporarily disables ACOS's disk channel #2 to free up some extra space. ACOS normally only provides 4k for binary USE files.

Sysops wishing to use the Zmodem drivers must write their own ACOS code or use SuperTac 7.x, which comes with a segment written by Andy that utilizes the drivers. The drivers comes with five pages of printed documentation which fully explain how to call the routines and what information they return, so it should not be difficult for proficient ACOS programmers to write their own code, if they wish.

Despite widely reported problems with the Zmodem routines used in the popular ProTerm terminal program, Andy says that his GBBS drivers have be written to handle ProTerm. ProTerm's problems have been documented on more than one occasion, and the documentation that Andy sent with his drivers describes some of ProTerm's errors. Hopefully InSync has noticed the publicity around this situation and will act on it.

Andy announced in January of this year that he had written Zmodem drivers for GBBS and would release them only if he received payment ($21) from 40 sysops within three months. After three months, II Sysops asked Andy what the outcome was, and he reported that not enough orders had been received, and he would probably be returning checks of those who paid, uncashed. Orders continued to trickle in, however, and in early May, he received his 40th

Please turn to ZMODEM, page 5.

In this issue...

INTRODUCTION

Thanks for trying out II Sysops!

This is II Sysops, a bimonthly newsletter written by and for sysops of Apple II bulletin board systems. In II Sysops, we hope to explore every aspect involved in running a BBS, including technical aspects, sysop policy, legal issues, and more. The majority of the newsletter will be written by you (more later). Here's a list of what we hope will become regular parts of II Sysops.

FRONT PAGE - "II Sysops" was chosen as the name of this newsletter because of its double meaning. "II Sysops," of course, means sysops of Apple II bulletin board systems, but it could also be read as "To: Sysops," indicating that the newsletter is intended to be read by sysops. The front page will have what we think is the major news story in the Apple II BBS community.

BOARD BY BOARD NEWS - In this section we will report on what's happening on bulletin boards across the country (and maybe around the world, in the future). I'll be calling major Apple II bulletin boards regularly, and I think this will be the most expensive part of the newsletter for us to maintain. If you know of a BBS that you think we should call for this column, drop us a line.

FEEDBACK - We've borrowed a common BBS term for the section, in which we'll publish letters from readers. If you have a comment on something in II Sysops, a question about sysoping, or whatever, this is where it will appear. We will attempt to answer questions, but can't guarantee anything. If you write a letter for this column, please mark it "FOR PUBLICATION." There is no Feedback in this issue, since noone has had anything to write us about, until now.

EDITORIAL - In each issue, we'll publish one or two editorials about some aspect of modeming. I wrote an editorial, but couldn't include it in this issue due to time and space constraints.

TECHNICAL - The article on high-speed modems in this issue is an excellent example of what we mean by "Technical".

REVIEWS - We were hoping to have a review of METAL to publish in this issue, but the author suggested that he could write a three-way comparison of GBBS, METAL, and ProLine, if given more time. We told him we'd give him more time. Look for it in the next issue.

It would certainly be difficult for the two of us to write all of this ourselves, so we're asking for your help. If you are interested in writing something for this newsletter, let us know and we can discuss it. We can't afford to pay you cash for your submissions, but we will pay you in the form of extended subscriptions to this newsletter. Published full length articles will be rewarded with a one year (six issues) subscription. Letters published in the Feedback section will be rewarded with one free issue.

By encouraging everyone to write something, it allows us to get a great variety of viewpoints on what's important to sysops. Hopefully that will make II Sysops a great publication.

In case you're wondering who "we" are, I'm Doug Granzow. I've been a sysop for about five years now, and I subscribed to the GBBS Pro News when it was published. It kind of disappeared, unfortunately, and I've always missed it. (Stephanie McGrath, if you're out there, we want to hear from you!) I currently run the Jixalti BBS in Maryland at (301) 549-2584.

The other half of this operation is Jimmy Schwartz, who you probably won't see much of. He helps with all of the details involving in putting II Sysops together, such as printing, mailing, and so on. I couldn't do it without his help.

Enough introductions. Let's get to the newsletter. Hope you like it!

Board-by-board news

A summary of what's happening on bulletin board systems around the world.

PRO-CENTRAL
(913) 642-5397

Jay Jennings, editor of 8/16 Central, has put up this programmers' BBS using ProLINE software.

L&L SUPPORT BBS
(303) 420-3568 [CODEN]

SuperTAC is now up to version 7.13. Some sysops are reporting problems getting it to work on their systems. The problem seems to be centered around the version of ACOS being used. SuperTAC 7.13 is available in L&L's EXfer, volume 18. It is free to all registered GBBS sysops, although Lance Taylor-Warren points out that it is *not* a product of L&L Productions and will not be supported by L&L Productions. Support is provided by the authors of the program through the L&L Support BBS.

Fruity-Dog, which allows GBBS to connect with FidoNet, is being used on L&L to carry FidoNet's Apple and For Sale echoes. FidoNet echoes have a high message volume and require real names. Fruity-Dog sells for $59.95. For more information on Fruity-Dog, call The Third Stone BBS at (201) 652-7349.

A few messages have been posted criticizing L&L's lack of movement on LLUCE, the new BBS package announced at AppleFest '89 in Boston. Lance Taylor-Warren has assured us that LLUCE is still being worked on, and I can personally attest to that--I've seen it. A lot of progress has been made (The "kernal" is complete). I've also heard rumors that LLUCE's release may be hampered by legal problems, although I couldn't confirm that. He also said that there will definately be an upgrade path for owners of GBBS 2.x. Whether or not ACOS code will work with LLUCE is uncertain, but with all of the talented sysops out there, surely someone will come up with an easy way to convert segments.

US ROBOTICS BBS
(708) 982-5092 [ILCHI]

USR has reduced prices for their sysops promotion. Qualified sysops can now get a USR Dual Standard for $499 (Suggested Retail Price is $1295), a Courier HST for $399 (SRP: $995), or a Courier V.32bis for $449 (SRP: $995). You must meet a variety of qualifications, including having been a sysop for the past six months. For full details, call the US Robotics BBS.

INFINITY'S EDGE
(415) 820-9401 [CAOAK]

OGG-Net, an automatic networking system for GBBS systems, continues to add new nodes, although most of them are still concentrated in California. Paul Parkhurst (Sysop of Infinity's Edge and author of OGG-Net) is always looking for new nodes. I'll admit, I'm partial to OGG-Net because my BBS runs it. It works great though, and only costs $50. Paul Parkhurst will send you and information packet if you are interested.

Paul Parkhurst is putting the finishing touches on an ACOS modem driver for a USR Dual Standard running on a IIgs. Besides allows connections up to 14.4Kbps, it fixes DTE at 38.4Kbps, and returns to ACOS information on data compression, modulation, and error correction. The driver is now in testing stages and available for download from Infinity's Edge.

MYSTIC BBS/AE][
(209) 957-7372

Ananke The Bard has figured out how to disable the copyright line that shows up when a user logs off from a GBBS V2.x system. To disable it, find the string $6A 20 8D 17 88 10 F5 or $6A 20 65 17 88 10 F5, depending on which version of ACOS you have. Then change the $20 8D 17 or $20 65 17 to $EA EA EA.

STARPORT BBS
(703) 931-0947 [DCWAS]

Starport is the home of EBBS, another BBS software package, which sells for $65. A UUCP-compatible networking module is available for an additional $20.

PRO-SOL
(619) 670-5379 [CASDI]

Pro-Sol is run by Morgan Davis, creator of the ProLine BBS package. There's been a lot of discussion lately on comp.sys.apple2 (which can be read on ProLine systems) about which is better, ProLine or GBBS. // *Sysops* will have a comparison of GBBS, ProLine, and METAL (see below) in the next issue.

THE CAPTAIN'S QUARTERS
(614) 294-0556 [OHCOL]

This BBS is home of METAL, the newest entry into the Apple BBS program arena. METAL offers its own programming language. It's still a new product, and it may take some time for it to become stable.

The Apple II and High Speed Modems
A Call For Action
Part 1

Written by MIKE GARVEY,
Sysop of Valhalla BBS (415) 221-4370

At one time, the Apple II was considered one of the premier telecommunications platforms available. Terminal software such as ASCII Express, was complicated but powerful and reliable; BBS software was easily accessible for use and modification; and innovative hardware such as the Apple-Cat modem was available. Today however, it appears that the advances in the telecommunications field have passed the Apple II by.

Telecommunications for the IBM-compatible PCs are far in advance of what is available for the Apple II currently. The typical power PC user can use sophisticated terminal software and error-correction protocols (i.e. ZModem) with his high-speed modem, to access feature-laden BBS' at speeds far in excess of 9600 bits per second (bps) on a regular basis. Similarly, the Sysops of these BBS' have access to powerful development environments such as Turbo-C, Turbo-Pascal and QuickBasic, that make BBS modifications and enhancements easy and attractive. On a feature for feature basis, today's Apple II is found lacking.

Progress is being made, however. Yet there is one area where recent efforts still manage to come up short -- achieving high throughput rates with a high-speed modem and the Apple II. The fastest rate the Apple II has been able to achieve is around 1000 characters per second (cps) while antiquated IBM PCXT computers are able to achieve around 1710 cps. This series of articles will present some ideas for achieving comparable speeds with an Apple II. References are made to the USRobotics Courier HST series of modems, but these ideas are equally applicable to other brands.

The Hardware

During serial communications, if the computer bus is being accessed by another application at the same time as data transmission (such as disk activity), the possibility exists that communications will be delayed. The serial port operates at a fixed rate, either the same rate as the remote computer, or a constant high-speed rate. If a delay occurs that exceeds the number of bits transferred per byte divided by the transmission rate in bps, the effective data transfer rate is reduced; but there is no data loss.

Data loss is a possibility when data is being received. If a data byte cannot be passed on to the communications application by the time the next data byte is received from the modem, then data is lost. Data loss is a very likely result of combining high-speed modems, with relatively slow computers such as the Apple II. When data is lost as it passes between a modem and a computer, it is not corrected by an error-correcting modem (using either MNP level 4 or V.42) -- these modems only correct errors between themselves and the remote modem. The poor user feels his error-correcting modem isn't doing its job.

Reduced throughput and lost data are consequences of the limitations of the computer and serial port hardware, and the communications software. An accelerated Apple IIGS using the built-in serial port is able to avoid the data loss problem, but the modem drivers in ProTERM and GBBS do little to curtail the throughput delays. An Apple II using the Super Serial Card is still susceptible to data loss at these high-speeds. The 8530 SCC in the Apple IIGS is an efficient serial port controller. It includes a small character buffer and support circuitry that can easily handle the fastest high-speed modem as well as the higher rate of 230,000 bps used by AppleTalk. In contrast, the 6551 ACIA in the Super Serial Card (or the 6850 used in some other serial cards) is only capable of speeds up to 19,200 bps. Combining the 6551 with the 1 mHz 65C02 in an Enhanced Apple //e (a common BBS arrangement), and communications without data loss are only possible up to 9600 bps. Clearly not every Sysop wishes to run his BBS on a 7 mHz Apple IIGS to achieve only 1000 cps while others are running their BBS with a cheap XT-clone and getting 1710 cps. Also, since a BBS is a disk-intensive application, the Sysop benefits more by speeding up his hard disk using a DMA (Direct Memory Access) SCSI interface such as the RamFAST, than by increasing the CPU speed with an Apple //e accelerator that doesn't support DMA (none currently do). A hardware solution is needed for the many Sysops who wish to continue running

their BBS' on a 1 mHz Apple //e.

A New Serial Card

The original 8250 UART which supported serial communications for IBM-compatible PCs has recently been enhanced and repackaged as the 16550A. The 16550A UART is similar to the Apple IIGS' 8530 SCC in that it contains a small buffer (16 bytes in each direction) which assists in preventing data loss, provided the software enables it. In PC telecommunications, the 16550A has demonstrated its ability (with suitable software support) to alleviate many data loss problems in computers that would otherwise be unable to keep up with high-speed modems.

Either the 8530 or the 16550A would be a good choice for a modern serial card, but preventing data loss at speeds higher than 9600 bps on the 1 mHz Apple //e would probably require additional hardware and software support. Software enhancements include support for larger character buffers. Hardware solutions include circuitry that detects data overruns, exerting flow control (RTS) to prevent data loss; and DMA-transfer circuitry on the serial card.

A common feature of PC modem drivers (also known as FOSSILs) is separate, transmit and receive buffers typically of 1000 byte capacity but adjustable to 2000, 4000 or more bytes. A large buffer prevents data loss by giving the computer more time to access the received data. A large buffer also improves throughput by cutting down on the number of hardware interrupts (signalling a buffer-full condition) forwarded to the computer. Additionally, these drivers offer various levels of interrupt sensitivity, allowing a user to customize the response of the hardware to how hard the software pushes the computer. Apple II hardware and/or software should provide similar functionality. The hardware should also handle data-overrun conditions by controlling the received data flow-control signal (RTS as used by the HST). When the software receive-buffer is nearly full, the hardware should lower RTS to signal the modem to stop transmitting data to the computer. After the data in the buffer has been processed and the buffer flushed, the hardware would then raise RTS to signal the modem to resume transmission. While software is capable of handling data-overruns, no current Apple II software does so to my knowledge. Hardware support for received data flow-control would standardize functions across a broad range of applications, and would provide a common operating environment for current and future software development.

Finally, a true DMA mode on the serial card would allow efficient data transfers with a minimum burden on the computer's resources. A DMA transfer allows peripherals direct access to the computer's memory with minimal use of the CPU and the computer's bus. DMA transfer offers impressive speed improvements over non-DMA transfer as can be seen in comparisons between the RamFAST hard disk interface and older, non-DMA hard disk interfaces.

By providing a flexible hardware solution, it should be possible to solve the majority of throughput and data-loss problems even with a 1 mHZ 65C02. Then it is simply a matter of dealing with cabling issues, setting up the modem itself, and configuring and optimizing the communications software. These items will be covered in the next article.

ZMODEM Continued from page 1...

check for $21. Zmodem started shipping in early June, after he completed work on it.

For those of you who missed out, you can still order Zmodem from Andy Nicholas. The cost is $21, and his address is listed elsewhere in this issue of II Sysops.

Andy has done a lot for the Apple II community, and most of it has been done pro-bono. We at *II Sysops* aren't sure what motivates him, but we think he deserves some appreciation for what he has done, and for what he will do in the future. We asked Andy if there was anything he wanted to say about Zmodem, and his reply was:

"Because I want people to start using Zmodem, I am working on making sure that people will be able to write good implementation of Zmodem. This may involve seeing that the right people have the source code to my GBBS Zmodem drivers. At this point, it's just something I'm working on, and if anyone is interested in supporting Zmodem in their communications program or BBS, they should drop me a line and we'll see what we can work out." [InSync, are you listening?]

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Mail your check or money order (U.S. Funds, please) to:

II Sysops
P.O. Box 720
Eldersburg, MD 21784

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12 issues	18.00	24.00	30.00

Old Timer Test

How long have you been into telecommunications? Keep score as you answer these questions.

Do You Remember...

1. ...when PC Pursuit was introduced in 12 cities for a flat $25 per month?
2. ...when the FCC "surcharge" was a real threat, and not just a recurring rumor?
3. ...when Ward Christensen put up his BBS? (C'mon, be honest!)
4. ...when the phrase "X-Mas Modemer" was coined?
5. ...when 1200 bps was considered fast?
6. ...when 300 bps was considered fast?
7. ...when ProTERM was introduced? ("Gee Ess wrote another modem program?")
8. ...when GBBS "Pro" was introduced? ("Greg who?")
9. ...when Andy Nicholas was unknown?
10. ...when Steve Schneider regularly posted mods and bug fixes on L&L Support? (And how many times did you tell him, "Thank you"?)
11. ...when Greg Schaeffer's brother told the world about the GBBS backdoor? [Don't worry, it's gone now.]
12. ...the Sider Graveyard?
13. ...GBBS "Pro" News? (Hi Steph!)
14. ...when the GS was called the Apple IIx, and it was still a rumor?
15. ...the much heard about, but highly evasive BASIC mod, which supposedly allowed you to run BASIC programs from ACOS?
16. ...when being able to launch AE from GBBS (with a user online) was a big thing?
17. ...when Apple modemers discovered the power of terminal emulation? (Ahh, the wonders of a spinning cursor)
18. ...having to turn the radio down while you were online so the acoustic modem wouldn't pick up the music?
19. ...the original GBBS file transfer section? (You know, "D1", "D2", etc.)
20. ...GBBS][?
21. ...Peripherals Plus? (and Stock Market, EFTS, Casino, and Spur)

How to score: Give yourself one point for each time you answered "yes".

How you ranked:

If you scored...

0 - 5 points You must be new. Either that or you've been in a cave the past few years, depending on which items you remembered. Try again when we run this feature again, in five years. (Hmm, maybe one of the questions then will be "Do you remember the first issue of *II Sysops*?")

6 - 10 points You've been around long enough to at least call yourself a real sysop, but you don't have a lot to brag about.

11 - 15 points Not bad. (I scored 12 myself.) You're qualified to tell stories like "I remember when BBSes that were up 24 hours a day were the exception and not the norm."

16 - 20 points You're qualified to tell the kind of stories your grandfather told you. You know, "In my day, we didn't have USR HSTs. We had little 50 baud clickers and we had to manually modulate and demodulate text."

21 points Do you really expect me to believe you? Okay, then write a story about something that happened a long time ago that we would all be interested in. I can see it now: "I was the first person in my state to have a modem. In fact, I put up a BBS *before* Ward did!"

The *II Sysops* BBS List

Listed are systems that *II Sysops* monitors for news or information of interest to readers. If you know of a system not listed that we should call, let us know.

Jixalti BBS	301-549-2584
L&L Support	303-420-3568
Infinity's Edge	415-820-9401
Captain's Quarters	614-294-0556
Pro-Sol	619-670-5379
Starport BBS	703-931-0947
US Robotics BBS	708-982-5092
Pro-Central	913-642-5397

II Sysops is published bi-monthly. A one year subscription (all rates in U.S. funds) costs $10 in the United States, $13 in Canada, and $16 elsewhere (airmail). To reach us, send email to Dig@cup.portal.com or call The Jixalti BBS at (301) 549-2584. You may also send mail to II Sysops, PO Box 720, Eldersburg, MD 21784, USA.

Vendor List

Listed are the addresses of organizations mentioned in this issue of *II Sysops*.

InSync Software
P.O. Box 22141
Phoenix, AZ 85028
V: (609) 992-5515

L&L Productions
P.O. Box 5354
Arvada, CO 80005-0354
V: (303) 420-3156
D: (303) 420-3568

Morgan Davis Group
10079 Nuerto
Rancho San Diego, CA
91977-1736
V: (619) 670-0563
D: (619) 670-5379

Andy Nicholas
1180 Reed Ave., Apt 12
Sunnyvale, CA 94086

Paul Parkhurst
3780 Norriss Canyon Rd.
San Ramon, CA 94583
D: (415) 820-9401

Saguaro-Soft
P.O. Box 0743
Bellevue, NE 68005-0743

SprintNet
12490 Sunrise Valley Dr.
Reston, VA 22096
V: (800) 835-3638

USRobotics, Inc.
P.O. Box 95734
Chicago, IL 60694
V: (800) 342-5877

Wilson Wares
P.O. Box 09693
Columbus, OH 43209
D: (614) 294-0556

In our next issue...

Which is best? A comparison of GBBS, ProLine, and METAL.

High Speed Modems. The next article in Mike Garvey's series.

Feedback. Comments from readers on our first issue. Send us yours! (Letters intended for this column should be marked "For publication.")

Andy Nicholas. An interview with one of the most important figures in the Apple II community.

More. Maybe *you* have something to say. Contact Doug Granzow if you are interested in writing an article. Deadline for submissions for the second issue is July 1, 1991.